Ning Gao

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Work Experience

2019 – Current **Microsoft Power Virtual Assistant team**
Power Virtual Assistant is a Microsoft product that help customers creating and managing powerful chatbots without the need for code or AI expertise with an easy-to-use graphical interface. I'm responsible of building and optimizing a common solution for the most frequently used language tasks (i.e., intent detection, named entity recognition) in conversational AI, as one of the most essential language intelligence offerings for non-expert customers.

2018 – 2019 **Microsoft Knowledge Graph Team (Satori)**
Microsoft's Satori is a graph-based knowledge repository that catalogs entities and relationships between them. While in Satori, I was responsible of building a pipeline extracting knowledge in subject-predicate-object format from Wikipedia free text. The pipeline involves multiple natural language processing tasks such as segmentation, named entity recognition, slot filling, entity linking, coreference resolution, relation extraction and so on.

Education

2012–2018 University of Maryland, College Park
Advisor: Dr. Douglas W. Oard
Ph.D. in Information Studies
Thesis: Towards Knowledge Base Population from Conversational Sources

2009–2012 Peking University
Advisor: Dr. Zhi-hong Deng
M.S. in Electronic Engineering and Computer Science

2005–2009 Peking University
B.S. in Electronic Engineering and Computer Science

Peer-reviewed Conference Papers

1. **Entity Linking to One Thousand Knowledge Bases**
   Ning Gao, and Silviu Cucerzan
   Proceedings of the 39th European Conference on Information Retrieval (ECIR 2017).
   Acceptance rate 27%
2. **Reducing Reliance on Relevance Judgments for System Comparison by Using Expectation-Maximization**
   Ning Gao, William Webber, and Douglas W. Oard
   Proceedings of the of the 36th European Conference on Information Retrieval (ECIR 2014): pp. 1-12.
   Acceptance rate 23%.
3. **Active Entity Recognition in Low Resource Settings**

Ning Gao, Nikos Karampatziakis, Rahul Potharaju, and Silviu Cucerzan
Proceedings of the 28th ACM International Conference on Information and Knowledge Management (CIKM 2019): pp. 2261-2264.
Acceptance rate 21%.

4. **Leveraging Side Information for Speaker Identification with the Enron Conversational Telephone Speech Collection**
Ning Gao, Gregory Sell, Douglas W. Oard, and Mark Dredze
IEEE Automatic Speech Recognition and Understanding Workshop (ASRU 2017).
Acceptance rate 45%.

5. **Support for Interactive Identification of Mentioned Entities in Conversational Speech**
Ning Gao, Douglas W. Oard, and Mark Dredze
Proceedings of the 40th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2017).
Acceptance rate 30%.

6. **Pearson Rank: A Head-Weighted Gap-Sensitive Score-Based Correlation Coefficient**
Ning Gao, Mossaab Bagdouri, and Douglas W. Oard
Proceedings of the 39th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2016): pp. 941-944.
Acceptance rate 31%.

7. **A Head-Weighted Gap-Sensitive Correlation Coefficient**
Ning Gao, and Douglas W. Oard
Proceedings of the 38th international ACM SIGIR conference on Research & development in information retrieval (SIGIR 2015): pp. 799-802.
Acceptance rate 31%.

8. **Enhancing Scientific Collaboration Through Knowledge Base Population and Linking for Meetings**
Ning Gao, Mark Dredze, and Douglas Oard
Hawaii International Conference on System Sciences (HICSS 2017).

9. **Knowledge Base Population for Organization Mentions in Email**
Ning Gao, Mark Dredze, and Douglas W. Oard
5th Workshop on Automated Knowledge Base Construction (AKBC 2016), 5 pages.

10. **HLTCOE participation in TAC KBP 2015: Cold start and TEDL**
Tim Finin, Dawn Lawrie, Paul McNamee, James Mayfield, Douglas Oard, Nanyun Peng, **Ning Gao**, Yiu-Chang Lin, Josh MacLin, and Tim Dowd
Proceedings of the Eighth Text Analysis Conference (TAC 2015), 14 pages.

11. **A Test Collection for Email Entity Linking**
Ning Gao, Douglas W. Oard, and Mark Dredze
NIPS Workshop on Automated Knowledge Base Construction (AKBC 2014), 5 pages.

12. **Guess What I Want: Inferring the Semantics of Keyword Queries Using Evidence Theory**
Jia-Jian Jiang, Zhi-Hong Deng, **Ning Gao**, and Sheng-Long Lv
Asia-Pacific Web Conference (APWeb 2012): pp. 388-398.

13. **Report on the SIGIR Workshop on "Entertain Me": supporting complex search tasks**
Nicholas J. Belkin, Charles L. A. Clarke, **Ning Gao**, Jaap Kamps, and Jussi Karlgren
ACM SIGIR Forum (2011): pp. 51-59.

14. **Fully Utilize Feedbacks: Language Model Based Relevance Feedback in Information Retrieval**
Sheng-Long Lv, Zhi-Hong Deng, Hang Yu, **Ning Gao**, and Jia-Jian Jiang
Advanced Data Mining and Applications (ADMA 2011): pp. 395-405.

15. **ListOPT: Learning to Optimize for XML Ranking**
Ning Gao, Zhi-Hong Deng, Hang Yu, and Jia-Jian Jiang
Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD 2011): pp. 482-492.
Acceptance Rate 27%.

16. **Adaptive Top-k Algorithm in SLCA-Based XML Keyword Search**
Hang Yu, Zhi-Hong Deng, Yong-Qing Xiang, and **Ning Gao**
Asia-Pacific Web Conference (APWeb 2010): pp. 364-366.

17. **A New Indexing Strategy for XML Keyword Search**
Yong-Qing Xiang, Zhi-Hong Deng, Hang Yu, Sijing Wang, and **Ning Gao**
Seventh International Conference on Fuzzy Systems and Knowledge Discovery (FSKD 2010): pp. 2412-2416.

18. **Combining Strategies for XML Retrieval**
Ning Gao, Zhi-Hong Deng, Jia-Jian Jiang, Sheng-Long Lv, and Hang Yu
Initiative for the Evaluation of XML Retrieval (INEX 2010): pp. 319-331.
(INEX 2010 Best Student Paper Award)

19. **A Learning-to-Rank Method for XML Keyword Search**
Ning Gao, Zhi-Hong Deng, Yong-Qing Xiang, and Hang Yu
Initiative for the Evaluation of XML Retrieval (INEX 2009): pp. 81-87.

Peer-reviewed Journal Papers

20. **Person Entity Linking in Email with NIL Detection**
Ning Gao, Mark Dredze, and Douglas W. Oard
Journal of the Association for Information Science and Technology (2017).

21. **XDist: An Effective XML Keyword Search System With Re-ranking Model Based on Keyword Distribution**
Ning Gao, ZhiHong Deng, and ShengLong Lv
Science China Information Sciences 57.5 (2014): pp. 1-17.

22. **LAF: A New XML Encoding and Indexing Strategy for Keyword-based XML Search**
Zhi-Hong Deng, Yong-Qing Xiang, and **Ning Gao**
Concurrency and Computation: Practice and Experience 25(11) (2013): pp. 1604-1621.

23. **Efficient Top-k Algorithm for eXtensible Markup Language Keyword Search**
Hang Yu, Zhi-Hong Deng, and **Ning Gao**
IET Software 6(4) (2012): pp. 342-349.

24. **MAXLCA: A New Query Semantic Model for XML Keyword Search**
Ning Gao, Zhi-Hong Deng, Jia-Jian Jiang, and Hang Yu
Journal of Web Engineering 11(2) (2012): pp. 131-145.

25. **Mop: An Efficient Algorithm for Mining Frequent Pattern with Subtree Traversing**
Zhi-Hong Deng, **Ning Gao**, and Xiaoran Xu
Fundamenta Informaticae. 111(4)(2011): pp. 373-390.

Awards and Scholarships

2016 ~ 2017 **iFellows Doctoral Fellowship**
The Andrew W. Mellon Foundation.

2015 **SIGIR Travel Grant**
38th international ACM SIGIR conference on Research & development in information retrieval.

2014 **Jacob K. Goldhaber Travel Grant**
Office of the President and the Graduate School, University of Maryland.

2014 **International Conference Student Support Award**
Office of the President and the Graduate School, University of Maryland.

2012 **Best Poster Award Runner-up**
iSchool Doctoral Research Day, Information Studies, University of Maryland.

2011 **Founder Scholarship**
Peking University Founder Group Co.,Ltd (For best student in AI)

2010 **Best Student Paper Award**
Workshop of INitiative for the Evaluation of XML Retrieval (INEX)

2009 ~ 2012 **College Scholarship**
School of Electronic Engineering and Computer Science, Peking University

Professional Membership

- Program Committee Member of **iConference 2016**
- Program Committee Member of **iConference 2015**
- Co-organizer of **SIGIR 2011 Workshop on "Entertain Me"**
  Other Co-organizers:
  - *Nick Belkin, Rutgers, USA*
  - *Charlie Clarke, Waterloo, Canada*
  - *Jaap Kamps, University of Amsterdam, The Netherlands*
  - *Jussi Karlgren, SICS Stockholm, Sweden*
- Program Committee Member of **Initiative for the Evaluation of XML retrieval (INEX) 2010**

Internship

2015 May ~ Aug Microsoft Cloud and Information Service Lab, Redmond
Advisor: Nikos Karampatziakis

2014 Jun ~ Aug Microsoft Research, Redmond
Advisor: Silviu-Petru Cucerzan

Skills

- **Language**: English (Fluent), Chinese-Mandarin (Native)